

# Appendix 9 — Revisions Since Version 2 of the SOLEC 98 Indicator List

## Indicator # Indicator Name

### Nearshore and Open Waters

#### State Indicators

6	Aquatic Habitat
8	Salmon and Trout
9	Walleye and <i>Hexagenia</i>
17	Preyfish Populations
68	Native Unionid Mussels
93	Lake Trout and Scud ( <i>Diaporeia hoyi</i> )
101	Deformities, Erosion, Lesions and Tumors in Nearshore Fish
104	Benthos Diversity and Abundance
109	Phytoplankton Populations
116	Zooplankton Populations as Indicators of Ecosystem Health

#### Pressure Indicators

18	Sea Lamprey
72	Fish Entrainment
111	Phosphorus Concentrations and Loadings
<del>112</del>	<del>Trends in Contaminant Concentrations &amp; Loadings in: Water, Air, Soil and Sediments - split into 4 new indicators: 117, 118, 119, &amp; 120</del>
113	Contaminants in Recreational Fish
114	Contaminants in Young-of-the-Year Spottail Shiners
115	Contaminants in Colonial Nesting Waterbirds
<b>117</b>	<b><i>Atmospheric Deposition of Toxic Chemicals</i> - new indicator, split out of 112</b>
<b>118</b>	<b><i>Toxic Chemical Concentrations in Offshore Waters</i> - new indicator, split out of 112</b>
<b>119</b>	<b><i>Concentrations of Contaminants in Sediment Cores</i> - new indicator, split out of 112</b>
<b>120</b>	<b><i>Contaminant Exchanges Between Media: Air to Water and Water to Sediment</i> - new indicator, split out of 112</b>

### Coastal Wetlands

#### State Indicators

4501	Coastal Wetland Invertebrate Community Health
4502	Coastal Wetland Fish Community Health
4503	Deformities/Eroded Fins/Lesions/Tumours (DELT) in Coastal Wetland Fish
4504	Amphibian Diversity and Abundance
<del>4505</del>	<del>Reptile Diversity and Abundance - deleted</del>
4507	Wetland-Dependent Bird Diversity & Abundance
4510	Coastal Wetland Area by Type
4511	Gain in Restored Coastal Wetland Area by Type
<del>4512</del>	<del>Chlorophyll a Levels - deleted</del>
4513	Presence, Abundance & Expansion of Invasive Plants
<del>4859</del>	<del>Reproductive Output of Mink - deleted</del>
7055	Habitat Adjacent to Coastal Wetlands - moved from Land Use Group

#### Pressure Indicators

4506	Contaminants in Snapping Turtle Eggs
4516	Sediment Flowing into Coastal Wetlands
<del>4518</del>	<del>Water Level Fluctuations - combined with 8133 into new indicator 4861</del>
<del>4854</del>	<del>Water Quality: Chlorides Flowing into Coastal Wetlands - deleted</del>
<del>4855</del>	<del>Water Quality: Nitrates into Coastal Wetlands - combined with 4856 into new indicator 4860</del>

- ~~4856~~ ~~Water Quality: Total Phosphorus Flowing into Coastal Wetlands~~ - combined with 4855 into new indicator 4860
- 4860** **Nitrates and Total Phosphorus Into Coastal Wetlands** - new indicator, combines 4855 & 4856
- 4861** **Water Level Fluctuations** - new indicator, combines 4518 & 8133

## Nearshore Terrestrial

### State Indicators

- ~~8128~~ ~~Nearshore Threatened Species~~ - combined with 8148, 8151 & 8152 into new indicator 8161
- 8129 Area, Quality, and Protection of Special Lakeshore Communities
- 8136 Extent and Quality of Nearshore Natural Land Cover
- 8137 Nearshore Species Diversity and Stability
- ~~8148~~ ~~Nearshore Endemic Species~~ - combined with 8128, 8151 & 8152 into new indicator 8161

### Pressure Indicators

- 8131 Extent of Hardened Shoreline
- 8132 Nearshore Land Use Intensity
- ~~8133~~ ~~Lake Level Fluctuations~~ - combined with 4518 into new indicator 4861
- 8134 Nearshore Plant and Wildlife Problem Species
- 8135 Contaminants Affecting Productivity of Bald Eagles
- 8146 Artificial Coastal Structures
- 8147 Contaminants Affecting the American Otter
- 4861** **Water Level Fluctuations** - new indicator, combines 4518 & 8133

### Human Activity (Response) Indicators

- 8139 Community / Species Plans
- ~~8140~~ ~~Financial Resources Allocated to Great Lakes Programs~~ - moved into Societal Group
- 8141 Shoreline Managed Under Integrated Management Plans
- 8149 Nearshore Protected Areas

### Basin-wide Indicators

- ~~8150~~ ~~Breeding Bird Diversity and Abundance~~ - moved into Land Use Group
- ~~8151~~ ~~Number, Extent, and Viability of Endemic Species~~ - combined with 8128, 8148 & 8152 into new indicator 8161
- ~~8152~~ ~~Threatened Species~~ - combined with 8128, 8148 & 8151 into new indicator 8161

## Human Health

### State Indicators

- 4179 Geographic Patterns and Trends in Disease Incidence

### Pressure Indicators

- 4081 Fecal Pollution Levels of Nearshore Recreational Waters
- 4083 Chemical Contaminants in Fish Tissue
- 4088 Chemical Contaminant Intake From Air, Water, Soil and Food
- 4175 Drinking Water Quality
- 4176 Air Quality
- 4177 Chemical Contaminants in Human Tissue
- 4178 Radionuclides

## Land Use

### State Indicators

- ~~7027~~ ~~Loss of Natural Features~~ - deleted
- ~~7042~~ ~~Aesthetics~~ - moved into Societal Group
- ~~7043~~ ~~Economic Prosperity~~ - moved into Societal Group
- ~~7055~~ ~~Habitat Adjacent to Coastal Wetlands~~ - moved into Coastal Wetlands Group
- 8150 Breeding Bird Diversity and Abundance - moved from Unbounded Group
- 8161** **Threatened Species** - new indicator, combines 8128, 8148, 8151 & 8152

### Pressure Indicators

- 7000 Urban Density

7002 Land Conversion  
~~7007 Resource Use - split into 7056 & 7057~~  
 7012 Mass Transportation  
~~7017 Pollution Levels - split into 7058, 7059 & 7060~~  
~~7054 Ground Surface Hardening - deleted~~  
**7056 Water Consumption** - new indicator, split out of 7007  
**7057 Energy Consumption** - new indicator, split out of 7007  
~~7058 Ground Level Ozone~~ - new indicator, split out of 7017, then combined with 4176  
**7059 Wastewater Pollutant Loading** - new indicator, split out of 7017  
**7060 Solid Waste Generation** - new indicator, split out of 7017  
~~8111 Agricultural Intensity - deleted~~  
 8114 Habitat Fragmentation  
 8142 Stream Flow  
*Human Activity (Response) Indicators*  
 7006 Brownfield Redevelopment  
 7028 Sustainable Agricultural Practices  
 7053 Green Planning Process

## Societal Indicators

### State Indicators

7042 Aesthetics - moved from Land Use Group  
 7043 Economic Prosperity - moved from Land Use Group

### Human Activity (Response) Indicators

3509 Capacities of Sustainable Landscape Partnerships - unchanged from SOLEC 98  
 3510 Organizational Richness of Sustainable Landscape Partnerships - unchanged from SOLEC 98  
 3511 Integration of Ecosystem Management Principles Across Landscapes - unchanged from SOLEC 98  
 3512 Integration of Sustainability Principles Across Landscapes - unchanged from SOLEC 98  
 3513 Citizen / Community Place-Based Stewardship Activities - unchanged from SOLEC 98  
 8140 Financial Resources Allocated to Great Lakes Programs - moved from Nearshore Terrestrial Group

## Unbounded

### State Indicators

9001 Atmospheric Visibility: Prevention of Significant Deterioration  
~~8150 Breeding Bird Diversity and Abundance - moved into Land Use Group~~  
~~8151 Number, Extent, and Viability of Endemic Species - combined with 8128, 8148 & 8152 into new indicator 8161~~  
~~8152 Threatened Species - combined with 8128, 8148 & 8151 into new indicator 8161~~

### Pressure Indicators

~~112 Trends in Contaminant Concentrations & Loadings in: Water, Air, Soil and Sediments - split into 4 new indicators: 117, 118, 119, & 120~~  
 4519 Global Warming: Number of Extreme Storms  
 4857 Global Warming: First Emergence of Water Lilies in Coastal Wetlands  
 4858 Global Warming: Ice Duration on the Great Lakes  
 9000 Acid Rain

Total number of indicators = 80

(Please note: Indicator #4861 Water Level Fluctuations is listed twice since it is an integrated indicator belonging to both the Coastal Wetlands and Nearshore Terrestrial groups)